

ABSTRACT OF INVENTION

Disclosed is a holographic laser scanner of ultra-compact design. The scanner has a scanner housing having width, length and height dimensions, and a holographic scanning disc for scanning and focusing a plurality of laser beams so as to produce a plurality of laser scanning planes. A plurality of beam folding mirrors are disposed about the holographic scanning disc, for folding the laser scanning planes so as to project a complex scanning pattern within the spatial extent of a predefined 3-D scanning volume. A plurality of parabolic light collecting mirrors are disposed beneath the holographic scanning disc for collecting laser light reflected from scanned code symbols. In accordance with principles of the present invention, the geometrical dimensions of the beam folding mirrors in conjunction with the geometrical dimensions of the holographic scanning disc determine the width and length dimensions of the scanner housing, whereas the geometrical dimensions of the beam folding mirrors and parabolic light collecting mirrors beneath the holographic scanning disc determine the height dimension of the scanner housing. By virtue of the present invention, it is now possible to design and construct holographic laser scanner having minimized height and width dimensions hitherto unachievable using prior art design methodologies.